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The National Map of Texas

By: Dr. Charles Palmer

The TWDB's Texas Natural Resources Information System (TNRIS) division is playing a lead role in one of the most innovative mapping programs of recent times. *The National Map*, a program sponsored by the U.S. Geological Survey (USGS), is revolutionizing the way maps are produced and updated.

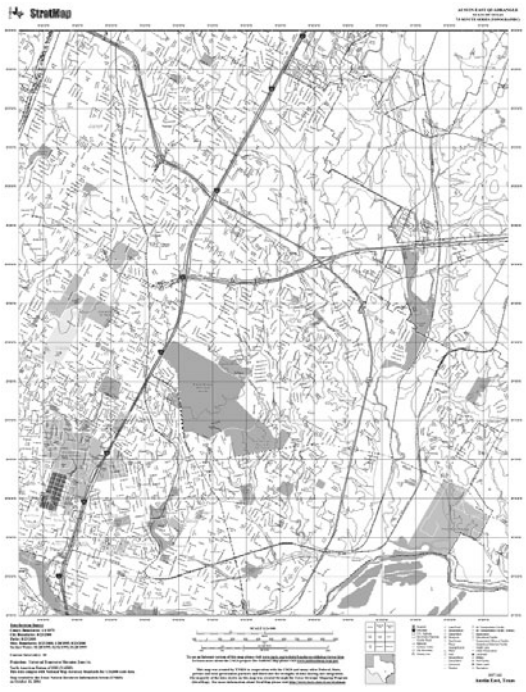
The current USGS 1:24,000 scale topographic maps (topos) are in serious need of updating, as the Texas maps' average age is 23 years. Map updates are critical in our rapidly changing state. However, the average cost for a major map revision, using traditional manual techniques, is $25,000 and Texas requires 4,376 of them to cover the entire state.

With the advent of digital mapping and Internet dissemination, we can now create and update maps at a fraction of the cost and time previously required. A standard topo map is composed of distinct data layers such as highways, water, political boundaries, and contour lines. In its new form, each of these layers is collected digitally and maintained at a local, regional, or state level according to agreed upon standards. They are then combined into maps nearly identical in appearance to standard USGS topos, the main difference being their currency, as the new maps are compiled from data potentially only a few weeks or months old.

In addition to being more up to date, the new maps are no longer limited to the standard quad areas; they can be centered on any point thereby increasing the probability of requiring just one map to cover an area of interest. As an added bonus, the new process includes the option of producing an orthophotoquad of each map area using the latest imagery

The National Map of Texas is currently based on the seven Stratmap layers compiled between 1998 and 2004. Updating and refining the data, however, is an ongoing process and there is expected to be increasing input from local and regional sources to improve timeliness and accuracy. TNRIS can dynamically generate all of the 1:24K topos using these data layers and customize each map to include unique names, custom labels and accurate coordinates.

These capabilities should be available to the general public via the Internet within the next two years. Meanwhile, the new maps are available upon request from TNRIS. To see and learn more, please visit TNRIS online at www.tnris.state.tx.us or call 512-463-8337.



Sample TNRIS-produced National Map product showing the Austin East quadrangle

Brackish Groundwater Desalination in Texas

By: Jorge Arroyo and Sanjeev Kalaswad

One important charge of the TWDB's Innovative Water Technologies Team is to implement the brackish groundwater desalination demonstration projects as directed by the Legislature. Texas has an estimated 2.7 billion acre-feet of brackish groundwater. To be useful, that water must be desalinated to remove the dissolved solids and other naturally occurring contaminants. Technological advances in recent years have reduced desalination costs and many Texas regional water planning groups are turning to desalination of brackish groundwater to meet projected shortages. In fact, half of the 16 regional water planning groups have recommended brackish groundwater desalination as a water management strategy in their most recent plans.

While projects such as the 7.5 million gallons per day (MGD) Southmost Regional Water Authority in Cameron County and the 27.5 MGD El Paso-Fort Bliss projects reflect the large-scale potential of the brackish groundwater desalination technology, it can be equally important as a water source for smaller rural Texas communities. In consideration of the needs of these communities, the TWDB developed a Legislative Appropriations Request for $600,000 for the planning, permitting, designing, and developing of brackish groundwater desalination demonstration projects that would serve as roadmaps for small to medium sized communities. The request was approved by the 79th Legislature.

Through a Statement of Interest (SOI) process, the TWDB sought proposals from small to medium sized communities located in water-scarce areas of the state, where some of the initial feasibility work had already been completed or initiated, and where the projects had a strong likelihood of being completed within the next five years. Based on established criteria, the TWDB selected to fund three of the ten applicants:

- **North Cameron Regional Water Supply Corporation**. The applicant is constructing a $6,000,000 3.2 MGD brackish groundwater desalination plant in Cameron County that is scheduled to become operational in May 2006. For our demonstration project, the applicant will develop an engineering facility roadmap describing the project from start to finish. They also plan to develop a web application for virtual tours of the facility and provide onsite educational activities.
- **City of Kenedy and the San Antonio River Authority**. The City of Kenedy proposes to retrofit and modernize an existing reverse-osmosis facility in the City of Kenedy, Karnes County. When completed, the project will allow for a factual comparison of the performance of new technologies with older reverse-osmosis filtration, and thereby provide useful cost-benefit information for similar facilities in other areas of the state.
- **City of San Angelo and the Upper Colorado River Authority**. The applicant will conduct an exploratory drilling program to characterize the suitability of the Whitehorse aquifer (not a TWDB-designated aquifer) as a source of brackish groundwater to meet the needs of the City of San Angelo. The project will include an evaluation of the long-term performance of the aquifer and an assessment of the treatability of water in the aquifer. As a final product, the applicant will develop a brackish groundwater guidance manual that can be used by other communities in the state that have access to brackish groundwater

Additional information on the projects is available from Sanjeev Kalaswad at 512-936-0838 or at sanjeev.kalaswad@twdb.state.tx.us.

State Revolving Fund Deadlines Fast Approaching

Deadlines are quickly approaching for entities wishing to be considered for low cost financing under both the fiscal year 2007 Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF). The required Intended Use Plan Worksheets and any related documentation must be received at the TWDB by the respective deadlines in order to be eligible for potential funding.

- DWSRF solicitation packets were mailed out in December 2005 and responses are due no later than February 10, 2006.
- CWSRF solicitation packets will be mailed out in mid-January 2006 and responses are due no later than March 22, 2006.

Visit the TWDB website at www.twdb.state.tx.us/assistance/financial/financial_main.asp for more details.

Aquifers of the Gulf Coast of Texas Conference

By: Ruben Ochoa

Tectonic forces, sediment deposition, and oceanic meanderings over hundreds of millions of years shaped the geology that defines the natural water bearing and hydro-dynamic characteristics of the gulf coast aquifers of Texas. These natural characteristics have been altered by human intervention, in some cases dramatically, in the relatively insignificant span of one to two hundred years. The economic and environmental viability of a large swath of Texas that includes the Houston-Galveston and Corpus Christi metropolitan areas may depend on how well these altered systems are managed into the future.

On February 15, 16, and 17, 2006 the Texas Water Development Board (TWDB) and Texas A&M University at Corpus Christi will hold the Aquifers of the Gulf Coast of Texas Conference at the university's ocean-front campus location. "The Gulf Coast aquifer is the primary source of groundwater for a very large area of Texas," says Dr. Robert Mace, director of the TWDB's Groundwater Resources Division. "This conference is designed to provide people in the area with an opportunity to better understand the area's aquifer systems and how they interact with their respective coastal ecosystems. This information may serve as a resource to help guide future decisions regarding the development of water for drinking and other purposes."

Groundwater monitoring workshops and groundwater conservation district consultations conducted by TWDB staff are on schedule for the first day of the conference. Dr. Mace will begin a full lineup of talks scheduled for the second day with an overview of the region's physiographic, climatic, and aquifer characteristics. Groundwater experts from academia, federal and state agencies, and several consulting firms will follow with talks covering topics that include the Yegua-Jackson and Brazos River alluvium aquifers, the region's hydrogeology, desalination, impacts of oil and gas operations, impacts of groundwater flows on estuaries, groundwater availability models, subsidence, conjunctive use, groundwater management, and the future of gulf coast aquifers as sources of water supply. A field trip on coastal geology is scheduled for the third and last day of the conference. The TWDB plans to publish a report based on papers submitted for the Corpus Christi conference.

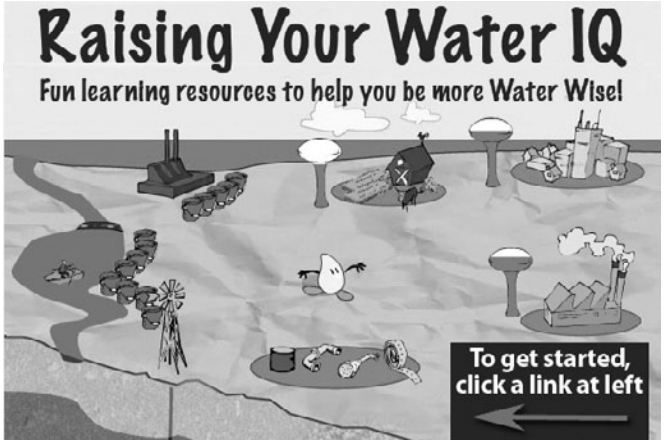
The Gulf Coast conference is the third in a series of aquifer conferences that the TWDB plans to hold across the state. For more information on the conference, agenda, and registration, please visit: www.twdb.state.tx.us and click on the Aquifers of the Gulf Coast of Texas link located under the Hot Topics heading. You may also contact Sarah Davidson at sarah.davidson@twdb.state.tx.us.

Raise Your Water IQ with TWDB's New Engaging Interactive Website Modules!

By: Stacy Pandey

Watch rivers flood, water infiltrating into an aquifer, people being affected by droughts and floods, and see the effects people have on water resources. Then test your knowledge with a vocabulary quiz! Learn how you can save water at home, and then be guided through a visualization of statewide water use volume, and how much water can be conserved if everyone followed those water conservation practices. Learn how different water user groups can conserve water, and try your luck at being a water planner and delivering the correct resources and tools to the right places at the right time. Good luck! Adults will have fun too! TWDB collaborated with Hamline University's Center for Global Environmental Education to produce this series of interactive website modules, as well as a sixth grade curriculum, and a K-3 coloring book with original Texas-centric characters. You can access these exciting additions to TWDB's water education program on the new kids webpage at www.twdb.state.tx.us/kids. This website is designed to teach kids about surface water/groundwater, water use, conservation, water planning, the water cycle, and nonpoint source pollution.

The modules support and enforce concepts in the newly-developed sixth grade curriculum and in the TWDB's existing *Major Rivers* fourth and fifth grade curriculum. The "Who Uses Water" activity series includes the "Webquest" activity. Here, students learn about the different water user groups. They select a water user group category and their team must determine how to ensure every group has enough water while meeting their conservation goal. This is a more in-depth look at the concepts presented in the water planner website module. The sixth grade curriculum is correlated to Texas education standards (TEKS), and integrates multiple disciplines. Please forward the link to any teachers you know!



Out with the Old, In with the NEW Regional Water Plans!

By: Sherry Cordry

The TWDB has received updated regional water plans for all 16 regional planning areas. These new plans will be compiled into the 2007 *Water for Texas* State Water Plan due to the Legislature no later than January 5, 2007. The TWDB reviewed the plans during June-August 2005 for conformance with rules and statutory requirements, and sent comment letters concerning any deficiencies to the regions. Additional comments provided by the public and other state and federal agencies were considered for inclusion by each Planning Region. Each of the Planning Regions held public hearings on their draft plans. As of this writing, 15 of the regions have adopted their final plans and submitted them to the TWDB for final approval.

The 2006 regional water plans include revised population and water demand projections, as well as water supply availability projections for the next fifty years. Total population in Texas is projected to more than double from 20.8 million in 2000 to about 45.5 million in 2060. In contrast, total water use for the same period is projected to increase by about 27 percent, from 17 million acre-feet in year 2000 to roughly 21.6 million acre-feet by 2060. Surface water availability is projected to decrease due to reservoir sedimentation, and groundwater supplies are expected to decrease due to depletions in some aquifers.

The plans evaluate potential impacts to water supplies and water quality and recommend water management strategies including conservation, wastewater reuse, desalination, and other projects for meeting additional water needs through 2060. New components include the use of Groundwater Availability Models (GAM) and (surface) Water Availability Models (WAM), and a report on water infrastructure financing complete with recommendations on how the state may assist in financing water projects. As part of the planning process, a new interactive database (DB07) was developed as a planning tool to compile and analyze water availability and demand data for each water management strategy.

Ag Demo - continued from page 6

New software and a website have been developed to maximize the benefits of the Harlingen Irrigation District's state-of-the-art distribution system metering telemetry system. Producers at each of the demonstration sites are now able to go on-line and access real-time data, including metered water use.

TWDB Welcomes New Leaders

By: Carla Daws

Wendall Corrigan Braniff joined the TWDB in January as the agency's new General Counsel. Wendall has over twenty years of professional experience in Texas water law and six years of experience with the Texas legislature. She served as the Legislative Aide to the Harris County delegation in the Texas legislature from 1979-1985. After earning a juris doctorate degree from the University of Houston in 1985, she began a career in water law with the Texas Water Commission in 1986. In 1991 Wendall entered private law practice providing legal counsel and representation to water utilities, districts, municipalities, developers and other entities in administrative, environmental and real estate law. In 2002 she partnered with her husband, son and son-in-law to form Braniff Attorneys, a multidisciplinary law firm with offices in Austin and Houston serving clients in the areas of administrative, environmental, real estate, insurance, and entertainment law. She has also served on the Barton Springs Edwards Aquifer Conservation District policy advisory committee and as vice chair of its citizens' advisory committee. Wendall has authored numerous publications in the areas of environmental, legislative and administrative law and most recently co-authored an overview of Texas environmental law for the 2005 environmental law Texas Practice Series published by West.

Wendall Braniff

Tommy Slaughter is the new Deputy Executive Administrator for the Office of Project Finance and Construction Assistance. Tommy comes to the TWDB from RMT, Inc., where he worked for the last 18 years. Tommy was the Texas Operations Manager for RMT, an engineering and environmental management consulting firm with four offices in Texas and 18 offices across the U.S. Prior to working at RMT, he was the Technical Section Chief for the TWDB's Construction Grants Division, managing a staff of 25 responsible for reviewing grant and loan applications, engineering reports, environmental information documents, design specifications, payment requests and providing construction phase engineering documentation. Tommy started his professional career with the Texas Water Quality Board as a permits review engineer. He is a graduate of Texas A&M University and is a Texas licensed professional engineer.

Tommy Slaughter

Loan/Grant Commitments
October through November 2005

Organization	County	Fund	Amount
October			
Trinity Rural Water Supply Corporation	Trinity, Polk and Walker	RWAF	$5,770,000
Greater Texoma Utility Authority for the City of Anna	Collin	TWDF	$5,000,000
Panhandle Groundwater Conservation District	Carson, Gray, Donley, Roberts, Armstrong, Potter, Hutchinson, Hemphill, and Wheeler	AWCLP	$500,000
City of Lorena	McLennan	CWSRF	$2,260,000
November			
City of Houston	Harris	CWSRF	$46,345,000
East Rio Hondo Water Supply Corporation	Cameron	RWAF	$4,150,000
Travis County Water Control and Improvement District No. 17	Travis	TWDF	$11,610,000
City of Pharr	Hidalgo	DWSRF CWSRF	$14,000,000 $29,000,000
Total			**$118,635,000**

AWCLP: Agricultural Water Conservation Loan Program
CWSRF: Clean Water State Revolving Fund
DWSRF: Drinking Water State Revolving Fund
RWAF: Rural Water Assistance Fund
TWDF: Texas Water Development Fund II

Latest Research & Planning Fund Grants Management Reports

Contract	Description	Date
2002001035	Flood Mitigation Plan for the City of Pearland	9/05
2003483510	The Texas Manual on Rainwater Harvesting	9/05
2003483499	Sediment core sampling in four Brazos River Authority lakes.	10/05
2003483485	Development of a regional plan to define a pattern of water and wastewater facilities, which will provide guidance for growth and development within western Bastrop County	10/05
2003483007	Continuation to improve TWDB's TxBLEND hydrodynamic model code for simulation of bay circulation and salinity patterns	10/05
2004483517	Examination, model current facilities, modifications to the current facilities; for 1) Ricardo Water Supply Corporation 2) City of Kingsville and 3) South Texas Water Authority.	10/05
2004001012	Evaluation of using oil fields for the disposal of concentrate from desalination plants. (Pass the Salt)	10/05
2004483519	Analysis of ground and surface water availability trends associated with Brush Control Projects in the Upper Concho Basin	10/05
2003483009	Development of agricultural water use estimating methodology	11/05
2002001034	Flood mitigation planning for Travis County	11/05
2000483350	To develop a Groundwater Availability Model for the Upper Gulf Coast area needed for the regional water planning process.	11/05
2004483504	Hydrodynamic Model Adaptation	11/05
2001483412	Regional water treatment and distribution system for Callahan, Comanche, Eastland, Haskell, Jones, Palo Pinto, Shackelford, Stephens, Taylor, Throckmorton, and Young Counties.	11/05

Save the Date!

Texas Water Day 2006 is scheduled for March 15, 2006 in Washington, DC. For more information, please contact Dave Mitamura, TWDB, at 512-463-7965 or Suzanne Scott, San Antonio River Authority, at 210-302-3613.

Drought Info

For the latest drought information, visit the TWDB drought index page at
www.twdb.state.tx.us/DATA/DROUGHT/drought_toc.asp

Please remember that all TWDB Water for Texas newsletters are available online at www.twdb.state.tx.us/publications/newsletters/Periodicals.asp *If you wish to be added or removed from the TWDB printed publications mailing list, please contact Carla Daws at* carla.daws@twdb.state.tx.us

Agricultural Demonstration Initiative Moving Forward

By: Kate McAfee and Kraig Gallimore

The TWDB's Agricultural Demonstration Initiative project in the Southern High Plains is winding-up its first crop year of the eight year project. Key to the first year's excellent progress has been the outstanding leadership, keen interest, and the enthusiastic participation of the project members and participants. In August 2005 the Floyd County Agricultural Extension Service and Project Manager Rick Kellison scheduled a field day tour and presentations that provided the first opportunity to observe and gauge the value of this large agricultural demonstration project.

A primary objective of the project is to use less water and still make money. Twenty-six sites in Hale and Floyd Counties, representing a wide range of crops, farming practices, irrigation systems, livestock operations and mixtures of crop and livestock enterprises are undergoing intense study. When asked what is being measured at each site, Rick Kellison answered, "If it can be measured, it is being measured. All of it." The project records crop type, variety, seeding rate, plant/harvest date, irrigation data, and crop yields. An in-depth economic analysis of each of the respective sites will also be completed. Participants are aware that their long range success depends upon finding ways to: (1) extend the life of the available irrigation water (Ogallala Aquifer); and (2) make a profit from the farm enterprise.

Despite a first project year with full reservoirs and an ample supply of water for farmers, the Rio Grande Valley Demonstration Initiative Program Director, Tom McLemore, has enthusiastically led a collaborative effort to recruit producers who share a long-term commitment to water conservation. Twelve demonstration sites that mirror the wide range of cropping and irrigation practices found in the valley have been selected, and irrigation and soil science experts are implementing data collection at the sites. Like the High Plains project, the Valley project will assess water use, crop variables and on-farm economics to provide producers with cost-effectiveness information to support informed decision-making about irrigation water management both in times of drought and in times of surplus.

The Harlingen Irrigation District is also adeptly navigating the complex maze of reviews and approvals for a new flow meter calibration facility and will begin construction early in 2006. The facility – one of few of its kind in the country – will provide important opportunities for growers and Irrigation District personnel to calibrate flow meters to ensure effective measurement of irrigation water flows both in the network of distribution systems and on individual farms.

Please see Ag Demo - continued on page 4

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To provide leadership, planning, financial assistance, information and education for the conservation and responsible development of water for Texas.

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